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SUBJECT: The VOLKHOVSKY Aluminum Plant, Espionage Object
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SUMMARY OR SID REPORT:

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The plant is located on the right bank of the Volkhov River and is reported to employ several thousand Soviets who work in three shifts daily, including Sunday. Latest information states that the plant consists of 3 smelting shops, two of them operating 120 smelting furnaces each, and construction sites for another 4 foundry shops have been marked. The production of these two larger shops amounts to 1 60-ton carload of aluminum bars every other day. Bauxite is shipped to the plant from the TIKHVIN area.

This plant was partly dismantled and demolished by the Soviets in 1941 and 1942 but in the middle of 1945 the clearing work was speeded up so that production could be resumed in 1946.

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REF ID: A66666
PAGE NO. 1The VOLKHOVSTROI Aluminum Plant, Leningrad Oblast

1.

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1. Location

The plant is located on the right bank of the Volchov River at the eastern outskirts of VOLKHOVSTROI (52°21' East/59°06' North) very close to the south of the TIKHVIN-L'NINGRAD RR line.

2. Plant Installations

See sketch and legend.

3. Plant History

Reconstruction of the plant began immediately after the war. In the workshops 2 and 3 (see sketch) there were about 100 smelting furnaces each operating at 15,000 A. A test station was located between these workshops.

The electric installations originate partly from Sweden and partly from Germany (dismantled German material).

Construction work was done in three shifts and was not completed in March 1948 although the plant was already in operation.

4. Labor Force

Several thousand Soviets, working in three shifts.

5. Production:

Aluminum bars measuring 200 x 200 x 100 mm. They were trucked to the VOLKHOVSTROI RR station. It was disclosed by posters that the prescribed quota had not been attained.

6. Supply of Raw Materials

Bauxite powder was supplied in 45-kg bags by rail, allegedly from the Ural area. About 12 three-ton trucks loaded with bauxite powder arrived daily. According to Soviet information the bauxite powder shipments from the Ural area will be suspended as soon as the plant installations for the production of bauxite powder have been restored.

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Note:

II.

1. Labor Force

About 600 Soviets in September 1947. Work was done in three shifts.

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2. Shipments

About 60 tons of white bauxite powder arrived daily, allegedly coming from the vicinity. It was learned from Soviets that in future red bauxite earth would also be processed which would come from the vicinity of VOLKHOSTROI.

Outgoing shipments comprised about two 30-ton RR cars loaded with 25-ton aluminum bars and leaving the plant every two to three days. 25X1X

Note: [REDACTED]

III. [REDACTED]

1. Plant Installations

Since 1944 two smelting workshops, 820x100 ft. each, had resumed operation. A third and smaller one was completed in rough brickwork in April 48. There were additional buildings but they could not be recalled.

2. Labor Force

About 5,000 Soviets, only few women, work was done in three shifts.

3. Production

4 carloads of aluminum bars daily.

4. Power was supplied by a VOLKHOSTROI power station.

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IV. [REDACTED]

1. Labor Force

About 4,000 to 5,000 Soviets. Work was done in three shifts.

2. Production

- (a) Aluminum bars, 2 large carloads daily
- (b) Aluminum sheets of 2.8 mm gauge.

3. Other Observations

The bauxite came from BAUKITOGORSK near BIKHVIY. Since the large BAUKITOGORSK bauxite mills had not resumed operation in the middle of 1948, the bauxite had to be shipped first to ZAPOROZHYE. Bauxite shipments also came from the Ural area. The VOLKHOSTROI aluminum plant had ball mill for processing limestone produced by nearby quarries.

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A French bauxite mill was being established in the plant but completion was delayed due to repairs.

When limestone was burnt in the lime kiln, carbonic acid simultaneously was produced and collected. This lime kiln was a 45-ft. cylinder, 16 ft. in diameter at the ground and tapering off to 10 ft. in diameter at the top. The hearth was 20x20x10 ft. At the top of the kiln was an iron platform. A 59-ft. iron lift hoisted the skips charging the kiln. From the conical part of the kiln at a height of 29 ft., 8 pipes discharged carbonic acid into an annular pipe from which a single pipe led to an about 27-ft. cylinder, 10 ft. in diameter, where the carbonic acid was purified.

The burden of the kiln consisted of 10 skip-loads of lime and one skip-load of coal. In one workshop bauxite powder, limestone dust and two kinds of soda (fresh and processed) were mixed in drums, 100 inches in diameter. The mixing ration was unknown. From there the product was conveyed into a four chamber revolving tubular furnace with a cylinder of 26 ft. in diameter and a length of 350 ft. These large furnace chambers were rotated by engines of 100 to 120 HP. The temperature in the furnaces was raised to white heat. The outflowing annealed mass consisted of little balls discharging into large crushing mills where they were ground to dust, then passed on into large vats filled with hot water. The useful material was dissolved there and channeled into 80 tubs in another workshop. All these operations were performed automatically and the conveyance was effected by pneumatic elevators and pipe lines. Only the red mud in the tubs was removed by dumpier cars. The above-mentioned carbonic acid was pumped into the milky liquid that remained in the mixing vats. This effected the separation of the aluminum oxide which then was filtered. The aluminum oxide was burnt in the revolving furnace and thus acquired the snow-white colour.

This white aluminum oxide was mixed with another gray-colored powder at a 1:10 ratio and taken into electric furnaces several hundred of which were established with series connection in a large workshop. These furnaces were heated with coke for two days whereupon the positive electrode was set on the burden and afterwards the negative. These electrodes were in the shape of large blocks. The great heat first melted the gray powder and then the aluminum oxide. The pure aluminum settled at the bottom and was tapped and cast into bars 20 in. long. The aluminum bars were sent to the rolling mills.

4. The SYASTROI Aluminum Plant (22° 3' East/60° 2' North)

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Large buildings for the storage of bauxite were observed in SYASTROI. According to Soviet information an aluminum plant with a labor force of 5,000 workmen was nearby. No further details concerning this plant were available.

Notes: [REDACTED]

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V. [REDACTED]

1. Plant History

In 1941 and 1942 the Soviets partly dismantled and partly demolished this plant. In the middle of 1945 the clearing work was speeded up so that the production could be resumed early in 1946.

2. Designation of the Plant: "VOLKHOVSTROI Aluminum Plant"

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Legend to the Sketch :

A VOLKHOVSTROI

B Aluminum Plant

- 1 New workshop under construction, which was started in 1947 and was to be completed in 1948. Size 500x200 ft.
- 2 Foundry shop, about 600x160 ft.
- 3 Boundry shop, about 600x160 ft.
- 4 "Transformer Station" according to Soviet designation
- 5 Administration and laboratory
- 6 Bauxite powder storage
- 7 Building with 2 tower like structures
- 8 "Coal station" according to Soviet designation
- 9 "Electro-station" according to Soviet designation
- 10 "Electron workshop" according to Soviet designation
- 11 Boiler House
- 12 Forge
- 13 Large shed for the storage of wood etc.
- 14 2 "siles", not used.
- 15 Large area covered with ruins; reconstruction work was under way in some places
- 16 New construction sites; 4 of them had been surveyed and excavation work had started.

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